Department of Public Health (DPH) Environmental Engineering Program (EEP) comments on the draft document entitled *A Statewide Total Maximum Daily Load Analysis for Bacteria Impaired Waters* prepared by the Department of Energy and Environmental Protection (DEEP) dated June 26, 2012:

Section 1 Introduction:

Although the first sentence states that the bacteria Total Maximum Daily Load (TMDL) is designed to support action to reduce bacteria pollution of impaired surface waters, it is the position of the EEP that the document does not adequately support decentralized sewage system (DSS) management that would reduce bacterial contamination of all surface waters, both impaired and non-impaired, and also does not support the following programs/policies: drinking water source protection (aquifer and watershed), recreational water use, non-source point pollution, nutrient TMDLs, and Connecticut's plan of Conservation and Development. Comprehensive DSS management as outlined in manuals, handbooks, and guidance documents (See Section 6) prepared by the U.S. Environmental Protection Agency (EPA) would facilitate a more effective and cooperative/integrated approach that would benefit the State of Connecticut's environmental and health protection goals, and would stress the importance of proactive pollution prevention as part of an overall plan to identify and address non-point sources of pollution. The concept of comprehensive DSS management was the subject of EPA's 1997 report to congress and EPA's 2005 DSS Program Strategy. The links to these documents are included at the end of these comments, along with links to EPA's Memorandum of Understanding (MOU) with DSS stakeholder organizations and partner organizations.

The list of bacterial contamination sources includes failing on-site wastewater treatment systems. Sub-standard, antiquated, and improperly sited on-site wastewater treatment systems can also be sources of bacterial impairment.

Section 2 Background:

Subsection 2.1: EEP is in agreement that bacterial contamination of surface waters represents a threat to users of the water, and some pathways to infection are cited, including ingestion. In addition to involuntary ingestion of polluted water by swimmers or other recreational water users, another ingestion pathway is consumption of bacterial tainted water from a building's plumbing system, as many older residential buildings, mainly seasonal structures, still utilize surface water supplies as their water supply source, and rarely is proper treatment provided to ensure the water is potable.

Subsection 2.2.1: The illegal disposal of septage from septic pump trucks also represents an unauthorized point source discharge of untreated wastewater. DPH licenses the individuals that pump/transport septage from on-site sewage disposal systems, and DPH has pursued enforcement action against individuals improperly disposing septage.

Subsection 2.2.2: Stormwater runoff can transport partially and incompletely treated wastewater from on-site sewage systems into surface water bodies. Non-point source pollution from on-site sewage systems can come from not only untreated, but also more commonly, partially or incompletely treated sewage. Use of the term "malfunctioning" to describe certain septic systems may cause confusion as

the context in which it is used is different than use of the same word in Section V A 4 of DPH's *Technical Standards for Subsurface Sewage Disposal Systems* (Technical Standards), which equates malfunctioning to leaching system backflow, and other red flag conditions that may not necessarily represent a failed system or a system that causes bacterial impairment of a surface water. The above noted Technical Standards' section equates failing subsurface sewage disposal systems (A.K.A., septic systems) to those systems that discharge onto the surface of the ground, into an open watercourse, or otherwise cause a health hazard or nuisance condition. The local director of health (DOH) is required to investigate and take necessary action pursuant to Public Health Code (PHC) Section 19-13-B103c (f) to abate failed septic systems on sites with design flows of 5,000 gallons per day (GPD) and less, and the DOH similarly is required by PHC Section 19-13-B104c (e) to investigate and abate failures of on-site sewage systems on DEEP jurisdiction sites (> 5,000 GPD, Alternative & Community Systems).

It is recognized that there are many existing on-site sewage disposal systems (cesspools & septic systems) that are insufficiently separated from groundwater especially during the high groundwater period from February 1st to May 31st, and some of these systems contribute to surface water bacterial contamination. Older antiquated systems that are not sized or sited per current code requirements can be referred to as sub-standard systems, and it is recommended that the "sub-standard" term be utilized instead of the term "malfunctioning".

Section 3 WQ Standards for Bacteria:

No comments.

Section 4 Bacteria-Impaired Waters:

Subsection 4.1: Failing and sub-standard on-site sewage disposal systems can contribute to bacteria impairment of surface waters in both "dry conditions" and "wet conditions", which per the TMDL are conditions that are correlated to recent precipitation events. The document indicates that ambient data collected during both wet and dry conditions is utilized to estimate bacteria levels from all contributing sources, and that an assessment of estimated contributions from various sources was not undertaken. As such, the estimated bacteria impairment from on-site sewage disposal systems was not determined. It is not clear if seasonal bacteria variations were analyzed to assist in determining estimated bacteria loads from various non-point pollution sources. In Connecticut, the majority of on-site sewage disposal system failures occur during late winter and early spring when groundwater levels are at their highest. Conversely, the fewest failures occur in the summer months, except in areas that have higher summer wastewater generation such as lakeside communities consisting of seasonal cottages, or family campgrounds. Assessments of bacterial impairments from on-site sewage disposal systems should include considerations of seasonal fluctuations in groundwater levels and system usage.

Section 5 TMDL:

Subsection 5.5: Source detection of bacteria impairment from on-site sewage disposal systems is a component of comprehensive decentralized sewage system (DSS) management, and monitoring plans/programs need to be coordinated with statewide DSS management initiatives. The EEP previously

worked with DEEP on an initiative for a statewide web-accessed database for decentralized sewage systems. Rhode Island has such a database that is available for use by local wastewater management programs to organize information about on-site sewage systems, including their location and condition, inspection results, and maintenance. The system is available for virtually free for Rhode Island municipalities, and is highlighted in their state's Bacteria TMDL. Unfortunately, CT's statewide web-accessed database was not funded. Watershed source detection programs will be improved and will be more successful if comprehensive DSS management is adequately supported. In areas where bacteria impairment from on-site sewage disposal systems is suspected, it may be helpful to include detergents/MBAS in the list of water quality parameters tested.

Section 6 Implementation Plans:

The success of watershed-based programs is also dependent upon the state's commitment to comprehensive DSS management. Watershed stakeholder organizations need a strong commitment and support for statewide comprehensive DSS management.

Section 6.1.1: It is recommended that the watershed management plan examples include a successful proactive DSS management program that has been integrated into a watershed management plan. Planning is a component of DSS management, and watershed planning activities need to be coordinated with DSS stakeholders.

Section 6.2.1: The document notes that the majority of conventional stormwater best management practices (BMPs) do not appear to be effective at reducing fecal indicator bacteria concentrations to primary contact stream standards, which is the ultimate target of TMDLs, therefore the first and foremost efforts should focus on source controls, which requires clear identification of the primary sources of fecal indicator bacteria relative to site specific conditions. EEP is in agreement with the statement that focusing on controllable sources of bacteria, particularly those of human origin, is believed to be the most important first step in protecting human health. Decentralized sewage systems can be a significant source of fecal bacterial impairment in surface water, which is why comprehensive DSS management is such an integral part of watershed-based programs. The document notes that low impact development strategies (LIDS) are not primarily designed to reduce pathogen loading. In fact, LIDS can increase pathogen loading if they are implemented without due consideration of on-site sewage disposal facilities. Typical LIDS include on-site stormwater disposal, which in certain cases can hydraulically overload the receiving soil that the proper operation of the on-site sewage disposal system is dependent upon. The document notes that LIDS are often intended primarily for new development, but it also notes these practices can be applied as retrofits to existing developed sites. Low impact development storm system retrofits on existing sites would be an activity that requires review and approval by the local director of health to ensure proper separation from the on-site sewage disposal system, and to confirm compliance with PHC Section 19-13-B100a (B100a), which requires preservation of sewage disposal areas. In order to be approved, it would need to be demonstrated that the stormwater system does not eliminate a code complying area or potential repair area per B100a. LIDS need to be coordinated at the state level to ensure consistency with DSS codes. Recently, EEP has reached out to DEEP stormwater regulators and other low impact development (LID) stakeholders, and

requested improved communication/cooperation since LIDS are being promoted without proper input from DSS regulators. The document includes a discussion of stormwater utilities as a means to provide revenue for stormwater management. Promoting stormwater management without coordinated DSS management is problematic and does not support TMDL goals.

Section 6.2.2: DEEP's Municipal Facilities Program has indicated that on-site sewage disposal systems are now estimated to serve approximately 40% of CT's population. In addition to serving primary residences, decentralized sewage systems also serve thousands of secondary and seasonal residential buildings, and they also serve non-residential structures such as schools, restaurants, and retail, office and commercial buildings. Comprehensive DSS management in accordance with EPA guidance should be promoted as an action step that will ensure decentralized sewage systems are properly sited, designed, installed, and maintained as this will assist in reducing bacterial impairment of surface waters. A more thorough discussion of DPH's role with decentralized sewage systems should be provided. In accordance with Chapter 393a of the CT General Statutes (CGS), DPH licenses subsurface sewage disposal system cleaners and installers. In accordance with PHC Section 19-13-B103e (b), DPH certifies local health agents that perform on-site and administrative functions for subsurface sewage disposal systems including site investigations, system inspections, plan approvals and permit issuance. Local health officials perform these functions on sites with design flows of 5,000 GPD and less. DPH is also required to approve plans for "large systems" that are systems serving buildings with design flows of 2,000 to 5,000 GPD. DPH publishes revisions to the Technical Standards in accordance with PHC Section 19-13-B103d (b). PHC regulations and the Technical Standards include site suitability criteria, and sizing and configuration requirements for septic systems, and they also specify construction and approval requirements for non-discharging toilet systems and sewage holding tanks. This section should also mention the local health department's responsibility with enforcing B100a that governs building construction (building additions & accessory structures) and intensification of use (building conversions & changes in use) projects on sites relying on septic systems. Proper enforcement of B100a ensures preservation of sewage disposal areas, and prevents use intensifications on sites that have wastewater flows that exceed the carrying capacity of the land. Improper enforcement of B100a can result in increased bacterial impairment of surface waters.

In the septic system section there is one sentence that discusses alternative treatment (AT) systems, and it notes these systems are regulated by DEEP and it notes these systems are not septic systems. As such, a separate subsection should be provided for AT systems, and additional discussion of these systems is warranted as with proper management they can be a benefit for enhanced treatment of domestic sewage which can assist CT's nutrient and bacteria TMDL efforts, as well as non-point source protection programs.

The Best Management Practices (BMPs) recommend installing access risers over septic tank manholes to facilitate inspection and pumping. The Technical Standards requires access manholes be installed on new and existing septic tanks that are more than 12 inches below grade. Installation of effluent filters on existing single compartment septic tanks, especially undersized tanks can cause premature filter plugging, especially if the filter has limited surface area openings. The BMPs should note that water softener and other water treatment wastewater shall not be directed to the septic system. Numerous

septic system failures have been attributed to improper water treatment wastewater disposal. Pet wastes, including cat litter, shall not be put into a septic system.

The CGS information in the septic system available resource portion of this subsection is incorrect. CT's septic system rules are not adopted in accordance with CGS Chapter 103 (Municipal Sewerage Systems). DPH's authority to adopt regulations for decentralized sewage systems comes from CGS Chapter 368a (Public Health and Well Being), and DPH has additional concurring authority under CGS Chapter 446k (Water Pollution Control). The web link provided in the CGS available resource section is for the Town Of Old Saybrook's Decentralized Wastewater Management District (DWMD), and this DWMD is the only such district in the state. Comprehensive DSS management will be a benefit to DWMDs.

Septic System – Available Resources: EEP recommends that the draft information and links are replaced with the following:

CT Department of Public Health (DPH) – Jurisdiction of on-site subsurface sewage disposal systems and construction activities on sites with design flows of 5,000 gallons per day and less lies with DPH and Local Health Departments, and is regulated by the PHC Sections 19-13-B100a and 19-13-B103, and the associated Technical Standards. The website offers links to the most recent revision of the Regulations and Technical Standards as well as Septic System 101: Operation and Maintenance of a Subsurface Sewage Disposal System, Sewage Backup Fact Sheet, homeowner information and funding opportunities. www.ct.gov/dph/subsurfacesewage

National Small Flows Clearing House - The National Small Flows Clearinghouse was funded by the U.S. Environmental Protection Agency to help America's small communities and individuals solve their wastewater problems through objective information about onsite wastewater collection and treatment systems. http://www.nesc.wvu.edu/wastewater.cfm

EPA Septic Website - http://cfpub.epa.gov/owm/septic/index.cfm

The following EPA publication links are available on the EPA Septic (Onsite) System's, Guidance, Manuals and Policies page:

Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems - Guide that helps states and local communities establish comprehensive management programs to ensure that onsite sewage systems function properly. Proper management of decentralized systems involves implementation of approximately one dozen management components such as public education and participation, planning, operation and maintenance, and financial assistance and funding.

Handbook for Managing Onsite and Clustered (Decentralized) Wastewater Treatment Systems - A "how-to guide" for implementing EPA's Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems. The guide describes a step-by-step approach for the development of a community management program for decentralized wastewater systems. It

includes specific community examples, gives an overview of the elements essential for sound management of these systems, and provides links to extensive resources.

Onsite Wastewater Treatment Systems Manual - This manual was developed to provide supplemental and new information for wastewater treatment professionals in the public and private sectors. It is not intended to replace the previous manual but to further explore and discuss recent developments in treatment technologies, system design and long-term system management. This manual has a more focused approach to onsite wastewater treatment and onsite system management.

Section 7 Funding and Community Resources

This section includes information on Connecticut's Clean Water State Revolving Fund (CWSRF), which historically has not supported decentralized sewage system management initiatives that would assist in the protection of surface water from bacterial impairment. EPA's Decentralized Sewage System Program Strategy promotes development of management programs when funding decentralized sewage systems using CWSRF. The 1997 EPA report to Congress discusses the barriers to funding decentralized systems and management programs, and the divide in the legislative authority for public health and water quality protection between two or more agencies is a barrier in many states including CT. Other New England states have adopted more proactive pollution prevention approaches to decentralized systems and the management of such systems. Rhode Island's Statewide TMDL for bacteria Impaired Waters discusses their state's Community Septic System Loan Program that is funded by the state's CWSRF. A similar program is not available in CT, but should be. Clearly, the utilization of CWSRF used for DSS management and antiquated system upgrades would provide a valuable opportunity as another tool to manage TMDLs.

The Home Solutions Program of CT no longer offers septic repair and replacement programs through the Department of Economic and Community Development and the Community Renewal Team, therefore that link/information should be removed.

Section 8 CT's Drainage Basins and Bacteria-Impaired Segments

Section 8.1: This section indicates that appendices 2 through 79 provide watershed specific bacteria data and information for 178 impaired segments. The EEP has not had sufficient time to review each of these appendices; however a review of several of them indicate that they include boiler plate language concerning decentralized sewage system matters. The comments listed below for several watersheds are most likely applicable to other watersheds.

Farm River Watershed Summary: The Land Use section references "leaking septic systems" as a source of nutrient and bacterial pollution that negatively impact water bodies. All septic systems ultimately discharge to the groundwater. It may be more appropriate to reference failing and sub-standard on-site sewage systems (cesspools and septic systems). The Potential Bacteria Sources section refers to and identifies "Large Septic Tank Leach Fields", however it is not clear what criteria was utilized for this designation. The Non-point Source section references malfunctioning septic systems as a source of bacteria in surface waters. As noted in comments for Section 2.2.2., the term malfunctioning may cause

confusion. It may be more helpful to reference failing and sub-standard on-site sewage systems (cesspools and septic systems). Also, the statement that local health departments are responsible for keeping track of malfunctioning septic systems is not accurate. Section 3 of the Recommended Next Steps section encourages local communities to develop a system to monitor septic systems. Such a system would include an inventory of septic systems through mandatory inspections. CT has not developed a standardized inspection protocol for routine sewage system assessments of this type. DPH and decentralized sewage system stakeholder organizations developed a septic system inspection document for systems evaluations that are done in conjunction with real estate transactions, and DPH is currently in the process of revising that document to make it more streamlined and easier to use. An appropriate action step is the development of standardized inspections protocols and template ordinances for local communities to use. These measures are part of DSS management, and should be supported at the state level. The document also encourages towns to develop programs that would eliminate sub-standard and failing systems. Local communities typically do not have the resources or funding to implement programs to eliminate older and antiquated sewage systems/components such as cesspools and steel septic tanks, which is why other states have assisted with funding of such programs. As an example, Rhode Island funds the replacement of cesspools. CT does not currently enforce the Large Capacity Cesspool ban under the UIC program. As noted in comments for Section 2.2.2., local health departments are required to pursue abatement of failed septic systems that are causing health hazards/nuisances. Encouraging local entities to develop septic system monitoring programs without state support for comprehensive statewide decentralized sewage system management is not the most effective or efficient way to address bacterial impairment of surface waters by on-site sewage systems.

Broad Brook Watershed Summary: The Non-point Source/Malfunctioning Septic System section needs revision. The towns of Griswold and Lisbon are part of the Uncas Health District, and with all health districts in CT, the district's Director of Health (DOH) is the DOH for each member town. The text references "properly managed septic systems", which are not systems that are just periodically pumped. Properly managed decentralized systems are systems that are subject to all of EPA's management components per their guidance documents.

Little River Watershed Summary: The term "leaky septic systems" is used in the Non-point Source/Malfunctioning Septic System section, and modification of the term is recommended as noted in the Farm River Watershed Summary comments.

Coginchaug River Watershed Summary: The Malfunctioning Septic Systems and Illicit Discharges section refers to certain properties that have access to sanitary sewers but currently utilize on-site sewage systems. Future action steps should include the development of an objective sewer need assessment protocol at the state level so that local communities have better tools to determine which properties would be better served by public sewers.

Section 8.1.1: Comments on the wet/dry weather analysis are provided in Section 4 comments.

Links:

Decentralized Wastewater Treatment Systems: A program Strategy
http://www.epa.gov/owm/septic/pubs/septic_program_strategy.pdf

MOU EPA and partners:
http://www.epa.gov/owm/septic/pubs/final_decentralized_mou_agreement_12-17-08.pdf

MOU EPA fact sheet: http://www.epa.gov/owm/septic/pubs/factsheet2011mourenewal.pdf

The Connecticut Federation of Lakes: http://www.ctlakes.org

1997 EPA Report to Congress: http://www.epa.gov/owm/septic/pubs/septic_rtc_all.pdf

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